natus®

Instruction Manual

Olympic Warmette®

Models 48/49 and 55/56

⚠ **CAUTION**	Read and be familiar with this manual before installing, operating, or servicing this device. To ensure operator, technician, and patient safety, use only as specified in this manual.

602027A

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Section

1

Overview

This section provides an overview of the Olympic Warmette®, including the intended use and a description of the controls and symbols.

About this Manual

This manual provides the necessary information to install, maintain, and service the Olympic Warmette®. The operating instructions in this manual are intended for use under the direct supervision of a licensed medical practitioner. The installation and service instructions in this manual are intended for use by qualified service technicians.

Conventions

Table 1.1 describes the conventions used in this manual.

Table 1.1 Conventions

Convention	Description
NOTE	Notes provide additional information to clarify a point in the text.
CAUTION	Cautions indicate situations that, if not avoided, could result in minor to moderate injury to the patient or operator, or damage to the equipment.
WARNING	Warnings indicate situations that, if not avoided, could result in serious injury or death to the patient or operator.
BUTTON	This character style represents buttons and controls that the user can touch or press.

Symbols

Table 1.2 describes the symbols used on this device, packaging, and its accessories.

Table 1.2 Product symbology

	Description
	Ground
	Read instructions
	Mains power ON
	Mains power OFF

Symbol	Description
L	Line (hot conductor)
N	Neutral (neutral conductor)
~	Alternating current (AC) voltage
	Hot surface

Intended Use

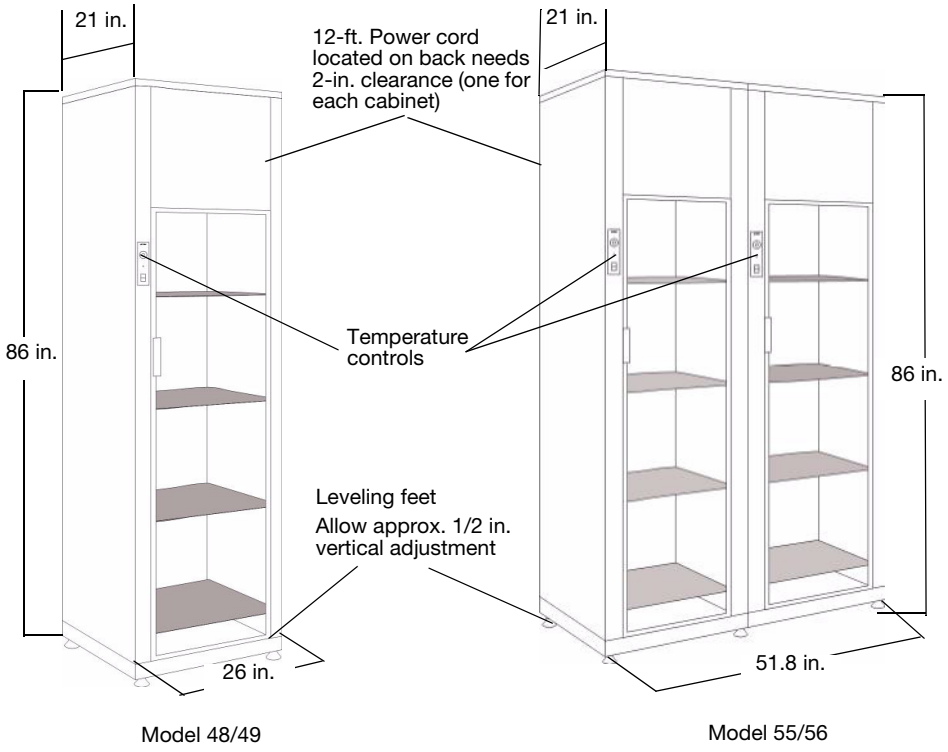
The Warmettes are intended for warming fluids, blankets or other linens in a hospital setting.

Description

The Olympic Warmette is a large-capacity, free-standing warming cabinet. It is available in two sizes with the option of convenient see-through doors on the front and back for either size.

The Warmette has a fully-enclosed, recirculating air system that warms blankets and bottles quickly and uniformly. Forced-air distributes heat evenly throughout the entire cabinet, so supplies are heated rapidly no matter where they are placed. Mesh shelves allow air to move under and around supplies.

Figure 1.1 Model 48/49 and Model 55/56 dimensions



Section

2

Installation

This section describes how to install the Olympic Warmette Models 48/49 and 55/56.

CAUTION

- Read and be familiar with this manual before installing, operating, or servicing this device. To ensure operator, technician, and patient safety, use only as specified in this manual.
- Only qualified technicians should assemble and install this product.

NOTE

The Warmette Models 48 and 55 have clear doors on the front (see Figure 1.1 on page 1-3). The Models 49 and 56 have an additional set of doors on the back side. The Models 48/49 and 55/56 are assembled in the same manner.

Assembling the Warmette

When you first receive your Warmette from the factory, minimal assembly is required.

Required Items:

- Level
- Soap-and-water or liquid disinfectant
- Towel

To assemble the Warmette:

1. After uncrating, install the leveling feet and stand the Warmette upright.
2. Unpack the bottom tray(s) and put in place in the warming cabinet (see Figure 1.1 on page 1-3).

CAUTION

The bottom tray(s) must be in place for the Warmette to operate properly.

3. Clean all metal surfaces with a towel moistened with soap-and-water or liquid disinfectant. Plexiglas® doors must be cleaned with soap and water.

NOTE

Never use alcohol to clean the doors as alcohol will damage the Plexiglas®.

4 After the Warmette is in place, adjust the leveling feet.

5 Use the level to ensure the Warmette is evenly balanced.

> **CAUTION** The Warmette must be bolted to the floor.

To install floor anchors:

1 Access the anchor holes by removing the bottom tray (for Models 48/49, see Figure 2.1 and Figure 2.2; for Models 55/56, see Figure 2.3 and Figure 2.4).

2 Pivot the bottom tray up and out to remove.

3 Ensure that the Warmette is level and that the jam nuts for the leveling feet are locked in place before using the Warmette.

Figure 2.1 Model 48/49 anchor holes

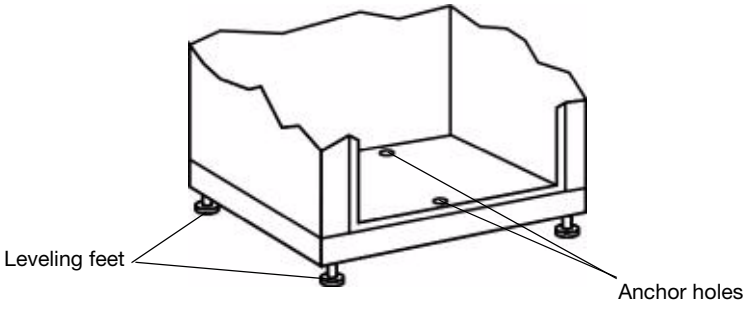


Figure 2.2 Model 48/49 anchor hole placement

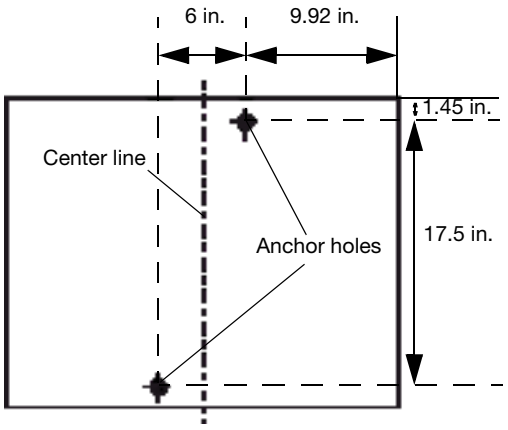


Figure 2.3 Model 55/56 anchor holes

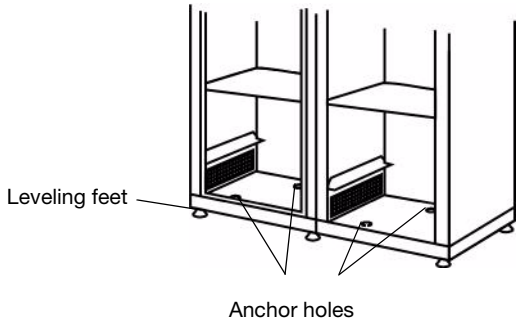
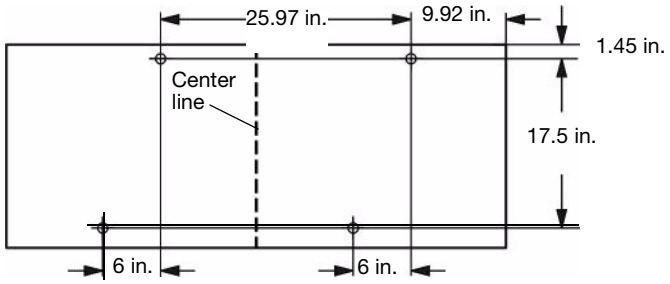


Figure 2.4 Model 55/56 anchor hole placement



Inspecting the Heater

If a Warmette fails to heat, a heater might have loosened during shipping. The Warmette has three 500W heaters per Plenum Assembly.

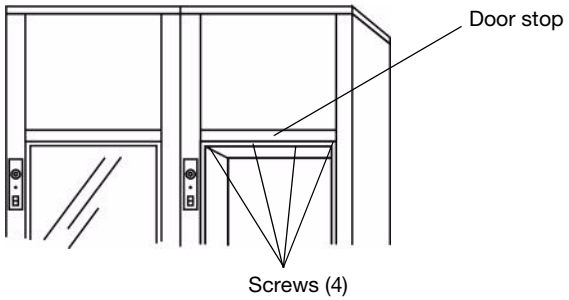
Required Items:

- Heater (part no. 401572)
- 1/4-in. nut driver

To check the heater:

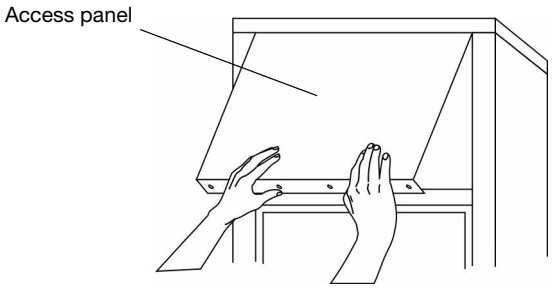
1. Press the power switch to the **OFF** (O) position, and unplug the power cord.
2. Remove the uper white door seal, and then loosen—but do not remove—the screws inside the door, behind the door stop (see Figure 2.5).

Figure 2.5 Screw locations inside Warmette door



3 Pull out and remove the front panel (see Figure 2.6).

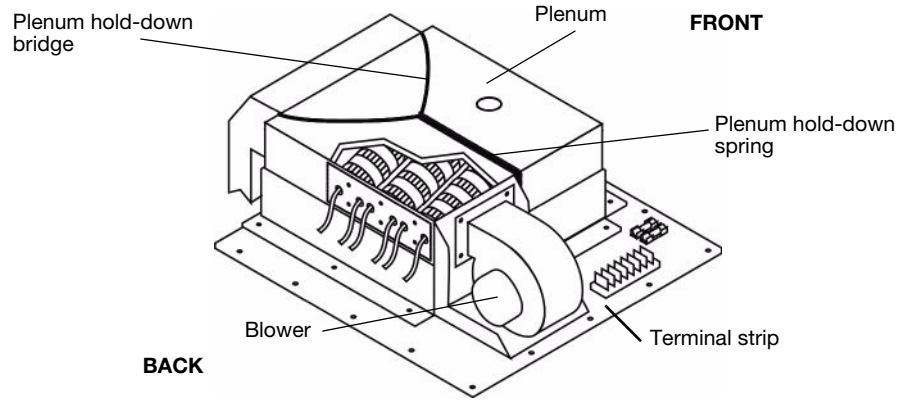
Figure 2.6 Removing the front panel



4 Unhook and remove the plenum hold-down spring and bridge (see Figure 2.7).

NOTE Push together the hold-down bridge and the spring, and then separate them.

Figure 2.7 Blower/Filter assembly



5 Separate the plenum from the casing.

6 Lift the plenum, and then unscrew the heater from its socket. Ensure that the socket cap is tight, and then screw the heater firmly back into place.

7 Reinstall the plenum. Ensure that the plenum and case are seated firmly. Install the plenum hold-down spring and bridge.

8 Reinstall the front panel and tighten the screws.

9 Test the Warmette for proper operation (see *Testing the Warmette*).

Testing the Warmette

Test the Warmette after installing it or performing any maintenance or service procedure to ensure that all systems are functioning properly.

To prepare the Warmette for testing:

1. Plug in the power cord, then press the power switch to the **ON** (|) position.
2. Set the temperature to 120°F.
3. Allow the Warmette to warm up for 5 minutes.

To test the Warmette:

- Ensure that the **HEATER ON** lamp is illuminated.
- Ensure that the air blowing from the top of the Warmette is noticeably warm.
- Listen for the blower to make sure it is running.
- Check that the **HEATER ON** lamp turns off within 60 minutes. It will then cycle on and off to maintain the set temperature.

Electrical Requirements

CAUTION This product must be connected directly to a hospital-grade electrical outlet(s) rated for minimum 20-ampere (A) service. Each heating cabinet is electrically separate. Two separate electrical outlets are required for the Model 55/56.

The Warmette product line has several voltage/frequency options:

- 120V~, 60 Hz, 14A
- 220V~, 50 Hz, 8A
- 220V~, 60 Hz, 8A

Section

3

Operation

This section describes how to operate the Olympic Warmette Models 48/49 and 55/56.

NOTE The Warmette Models 48 and 55 have clear doors on the front (see Figure 1.1 on page 1-3). The Models 49 and 56 have an additional set of doors on the back side. The Models 48/49 and 55/56 are operated in the same manner.

Operating the Warmette

CAUTION

- Read and be familiar with this manual before installing, operating, or servicing this device. To ensure operator, technician, and patient safety, use only as specified in this manual.
- Connect this device directly to a hospital-grade electrical outlet.
- Do not place wet or very damp blankets inside the Warmette.
- The inner metal surfaces of the warming chamber are hot whenever the warmer is on.

WARNING

Not suitable for use in the presence of flammable anaesthetic mixtures with air, oxygen, or nitrous oxide.

To operate the Warmette:

1. Plug in the power cord, then press the power switch to the **ON** (|) position.
2. Place blankets or solution bottles into the warming chamber.
3. Set the temperature by pressing in the **SET TEMP** knob while rotating to the appropriate temperature (see Figure 3.1, *Control panel*, on page 3-2).

CAUTION

- Use caution to avoid burns when touching objects inside the warming chamber.
- Do not exceed 120ºF for blankets.
- Warm only external-use-only solutions. Never use the Warmette to warm solutions that have low boiling points or contain flammable solvents.
- Allow approximately eight (8) hours for solutions to reach selected temperature after placing them in the Warmette.
- Verify the appropriate solution temperature with a medical practitioner before use.
- Ensure the bottom shelf is in place so that the Warmette will operate properly.

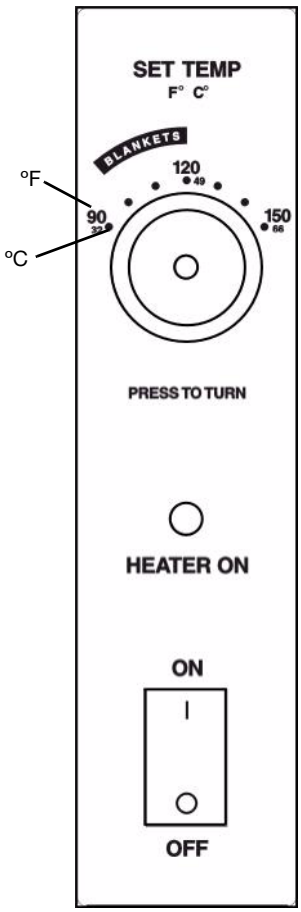
NOTE Temperature accuracy is ±10°F of selected temperature depending on the location in the cabinet.

Controls and Signals

The following controls and indicators are used when operating the Warmette (see Figure 3.1).

- **Mains power switch:** Turns the power **ON** (|) and **OFF** (O). The switch illuminates in the **ON** position to indicate the presence of power to the unit.
- **SET TEMP dial:** Adjusts the internal temperature settings. To set the temperature, press the **SET TEMP** knob in while turning to the appropriate temperature.
- **HEATER ON indicator:** Illuminates when the internal heaters are operating.

Figure 3.1 Control panel



Section

4

Maintenance

This section describes when and how to maintain the Olympic Warmette Models 48/49 and 55/56, including cleaning procedures.

> **WARNING** **Electrical shock hazard when the enclosure is open. Always unplug the power cord from the electrical outlet before cleaning or maintaining the Warmette.**

NOTE The Warmette Models 48 and 55 have clear doors on the front (see Figure 1.1 on page 1-3). The Models 49 and 56 have an additional set of doors on the back side. The Models 48/49 and 55/56 are maintained in the same manner.

Removing the Trays

The upper trays are made of a plastic-coated metal mesh and can be removed for cleaning. They are held in place by four thread-cutting screws (see page 4-2).

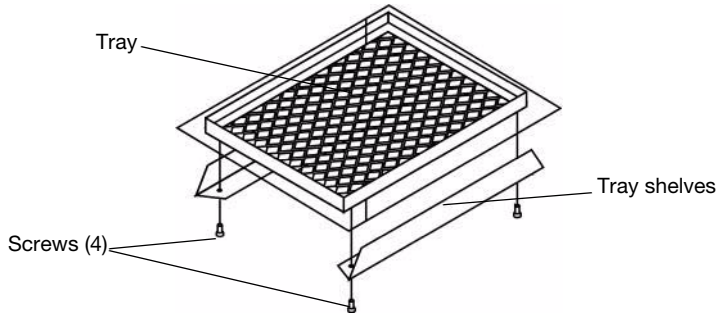
Required Items:

- 1/4-in. nutdriver

To remove the trays:

1. Access the screws from underneath the tray.
2. Pivot the solid-panel tray up and remove.

Figure 4.1 Removing the tray for cleaning



NOTE Avoid cross-threading or over-tightening the thread-cutting screws. Doing so will strip the screw holes.

> **CAUTION** Ensure that the bottom tray is correctly placed for operating the Warmette. Ensure that the lint filter is not blocked.

Cleaning the Warmette

Regularly clean the Warmette to keep it in optimal functioning condition.

Required Items:

- Mild soap and water solution
- Liquid disinfectant
- Towel

> **CAUTION**
> - Do not allow liquid to enter the upper enclosure as liquids may cause electrical damage.
> - Never use alcohol to clean the doors as alcohol will damage the Plexiglas®.
> - Ensure inside surfaces are cool to touch before cleaning.

To clean the external surfaces:

- Wipe the external surfaces moistened with a towel moistened with mild soap-and-water solution or a liquid disinfectant.

To clean the internal surfaces:

1. Press the power switch to the **OFF** (O) position, then unplug the power cord.
2. Wipe the interior using a towel moistened with liquid disinfectant.
3. Clean the Plexiglas® doors with a towel moistened with mild soap-and-water solution.
4. Plug in the power cord.

Quarterly Maintenance

Cleaning the Lint Filter

The Warmette has a lint filter located on the inside left wall of each warming module under the bottom tray (see Figure 4.2). Clean the filter at least once every three months, or more often if it becomes blocked.

Required Items:

- 1/4-in. nutdriver

To clean the lint filter:

1. Press the power switch to the **OFF** (O) position, then unplug the power cord.
2. Remove the bottom trays to access the lint filters.

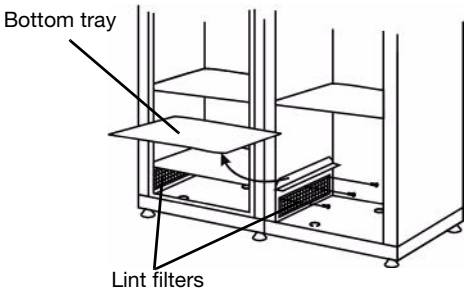
3 Unscrew the three screws holding the filter, then remove the filter from the cabinet (see Figure 4.2).

4 Clean the filter by holding it under a water faucet, then allow the filter to thoroughly air dry.

5 Ensure the filter is dry, then place and secure with screws.

6 Plug in the power cord.

Figure 4.2 Location of the lint filters



WARNING **To prevent fire hazard, never operate the Warmette with the lint filter removed.**

Annual Maintenance

Annually inspect the following components and areas for dust and lint, and clean as required.

Cleaning the Inside of the Upper Cabinet

Required Items:

- Vacuum cleaner

To clean the upper cabinet:

1 Access the cabinet (see *Replacing the Blower* on page 6-9).

2 Vacuum accumulated dust and debris.

3 Reassemble the Warmette.

Cleaning the Blower Housing and Blower Wheel

Required Items:

- Vacuum cleaner

To clean the blower housing and blower wheel:

1. Access the blower housing (see *Replacing the Blower* on page 6-9 for disassembly instructions).
2. Vacuum accumulated dust and debris.
3. Reassemble the Warmette.

Cleaning the Heater Plenum and Box

Required Items:

- Vacuum cleaner

To clean the heater plenum and box:

1. Access the heater plenum (see *Replacing the Heater* on page 6-12 for disassembly instructions).
2. Vacuum accumulated dust and debris.
3. Reassemble the Warmette.

Testing the Thermal Cut-out Function

To verify that the function of the thermal cut-out does not degrade over time, perform the following procedure annually.

Required Items:

- 1/4-in. nut driver
- Amp probe
- 6 x 6 in. metal plate

To test the thermal cut-out function:

1. Press the power switch to the **OFF** (O) position, then unplug the power cord.
2. Loosen—but do not remove—the screws inside the Warmette door, behind the door stop (see Figure 6.3, *Screw locations inside Warmette door*, on page 6-9).
3. Pull out and remove the front panel (see Figure 6.4 on page 6-9).

> **CAUTION** Electrical shock hazard when the front panel is removed.

4. Plug in the power cord, then press the power switch to the **ON** (|) position.

5 Rotate **SET TEMP** to high. Allow the warmer to heat for 20 minutes.

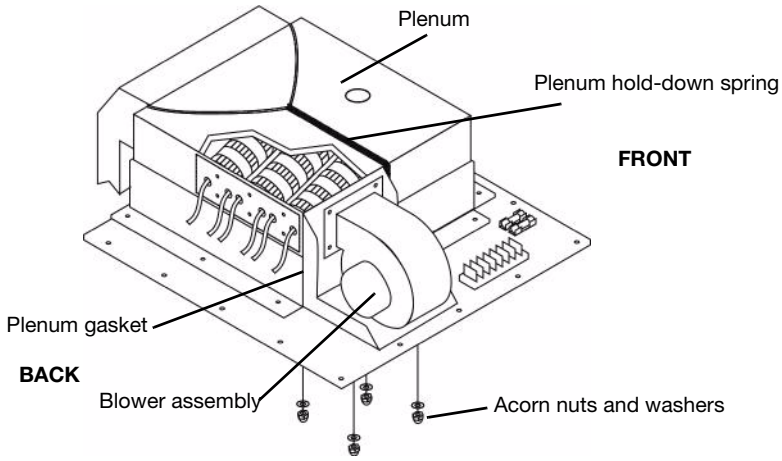
6 Connect an amp probe to the number 1 (hot) wire near the fuse holder. The amperage reading should be approximately 14.0A for 120V~ or 8A for 220V~.

CAUTION Interior parts of the cabinet and heating components such as the plenum may become hot.

7 Block the airflow from the blower into the plenum by placing the metal plate between the blower and the plenum gasket (see Figure 4.3 on page 4-5).

NOTE You may need to loosen the acorn nuts to place the metal plate. The acorn nuts should be reattached before the test to assure that air is not circulating to the heaters.

Figure 4.3 Blower assembly



8 In approximately 5–10 minutes the thermal cut-out will open and the amperage reading should drop to approximately 1 amp, indicating that power to the heaters has been interrupted.

9 Remove the metal plate.

10 Wait 20 minutes for the plenum to cool, and then press the reset button on the thermal cut-out. The amperage reading should return to the previous value from step 6 above.

11 If the thermal cut-out does not function as described above, replace it (see *Replacing the Thermal Cut-out* on page 6-11).

12 Repeat steps 1–9 for the second thermal cut-out on Model 55/56 Warmettes.

13 Reinstall the front panel.

14 Test the Warmette for proper operation (see page 2-5).

Section

5

Troubleshooting

Should you experience difficulty when operating your Olympic Warmette®, consult the following table. For problems not listed in the table, contact Natus Medical (see *Technical Support* on page 5-2).

Table 5.1 Troubleshooting chart

Problem	Possible Cause	Solution
■ Power switch is on ■ Heater is on ■ Blower runs ■ Heater lamp does not illuminate	Burned out heater indicator lamp	Replace the heater indicator lamp (see page 6-6).
■ Power switch is on ■ Heater lamp illuminates ■ Heater is off ■ Blower does not run	Blocked airflow to the blower	Free any obstruction from the fan.
	Tripped thermal cut-out	Reset the thermal cut-out switch.
	Malfunctioning blower	■ Replace the failed blower motor (see page 6-9). ■ Reset the thermal cut-out switch (see page 6-11).
	Loose electrical connection to the blower	■ Test all the electrical connections to the blower. Repair as necessary. ■ Reset the thermal cut-out (see page 6-11).
■ Power switch is on ■ Heater lamp does not illuminate ■ Heater is off ■ Blower does not run	No power	Ensure that the power cord is fully seated in the power receptacle.
	Blown circuit breaker	Check the circuit breaker. Reset as needed.
	Blown fuse	Replace the fuse (see page 6-3).
■ Power switch is on ■ Heater lamp illuminates ■ Blower runs ■ Heater is off or on low	Malfunctioning thermal cut-out	Contact Natus Medical (see page 5-2).
	Malfunctioning heater	Replace the heater (see page 6-12).
	Malfunctioning thermostat	Replace the thermostat (see page 6-6).
	Loose heater	Check the socket for arcing. If it is okay (no arcing), tighten the heater in the socket. If arcing is present, replace the socket.
	Loose or broken electrical connections to the heater	Check all electrical connections. Repair as necessary.

Technical Support

For technical support, contact the Natus Medical Service Department at:

Toll-free: 1-866-940-7143 (US/Canada)
Phone: +1-206-767-3500 (worldwide)
Fax: +1-206-767-0573
Email: Seattle_technical_service@natus.com

Section

6

Service

This section includes procedures for servicing the Olympic Warmette Models 48/49 and 55/56.

CAUTION

Only qualified technicians should perform the service procedures.

WARNING

Electrical shock hazard when the enclosure is open. Unplug the power cord from the electrical outlet before servicing the Warmette.

NOTE

- In this section, the illustrations depict either the Model 48/49 or the Model 55/56. Follow the appropriate instructions when servicing your Model 48, 49, 55, or 56.
- The Warmette Models 48 and 55 have clear doors on the front (see Figure 1.1 on page 1-3). The Models 49 and 56 have an additional set of doors on the back side. The Models 48/49 and 55/56 are serviced in the same manner unless otherwise noted.

Servicing the Warmette

If your Warmette should become damaged, replacement parts are available. To order a part, see *Ordering Information* on page 7-1.

Repair Policy

Do not use malfunctioning equipment. To promote product reliability, a qualified technician should perform the replacement and service procedures described in this section. Before servicing your equipment, check your equipment warranty status, check the normal repair procedures for your facility, and determine the appropriate repair procedure to perform.

To ensure performance to factory specifications, Natus Medical recommends that all replacement parts be those either manufactured or sold by Natus Medical. After all repair actions and tests are complete, perform the pre-operative test procedure in this manual (see on page 2-5) to ensure proper operation and compliance with published specifications.

Repair Procedures

WARNING **Electrical shock hazard when the enclosure is open. Unplug the power cord from the electrical outlet before servicing the Warmette.**

Temperature Measurement

Each Olympic Warmette is factory tested to ensure that it meets heating and safety specifications.

The interior temperature of the device may vary significantly due to factors such as placement, number of objects, and airflow around the objects. To ensure that the Warmette is heating as specified, perform the following procedure.

Required Items:

- An accurate thermometer capable of reading temperature ranges of 32–170°F (0–77°C)

NOTE To verify the accuracy of any thermometer, you can measure the temperature of ice water (32°F or 0°C).

- A standard one-liter bottle (glass or plastic) filled with water or saline solution

To confirm the warming chamber temperature at 120°F (48.8°C):

1. Plug in the power cord, then press the power switch to the **ON** (|) position.
2. Push in and rotate the thermostat knob to 120°F (48.8°C).

CAUTION Before continuing, ensure that the inside surfaces are cool to the touch. Hot surfaces inside the device cause a potential burn hazard.

NOTE Placing the bottle in an incorrect position will adversely affect the accuracy of the test.

3. Place the full one-liter plastic bottles on the top shelf.
4. Allow the Warmette to operate undisturbed for a minimum of eight (8) hours.
5. After the operating period, measure the temperature of the solution in the bottle. If the temperature measures between 110–130°F (43.3–54.4°C), the Warmette is heating to within operating specifications.

Replacing the Fuse

If the heater lamp does not illuminate, the heater remains off, and the blower does not run while the power is on, you may need to replace the fuse.

Required Items:

- 1/4-in. nut driver
- Replacement fuse (part no. 200021)

To remove the fuse:

1. Press the power switch to the **OFF** (O) position, then unplug the power cord.
2. Loosen—but do not remove—the screws inside the door, behind the door stop (see Figure 6.3 on page 6-9.
3. Pull out and remove the front panel at the top of the unit.
4. Remove the fuse(s) from the fuse holder(s).

> ⚠ **WARNING** **For protection against fire hazard, replace a fuse only with the correct type and rating of fuse (see *Replacement parts list* on page 7-1*).***

To install a new fuse:

1. Place the new fuse of the type and rating that is indicated on the fuse replacement label into the fuse holder.
2. Slide the fuse holder into place.
3. Secure the front panel.
4. Test the Warmette for proper operation (see page 2-5).

Removing the Access Panel

To access some internal components for repair (e.g. thermometer), you will need to remove the access panel. The access panel is located on the left inside wall of the Warmette.

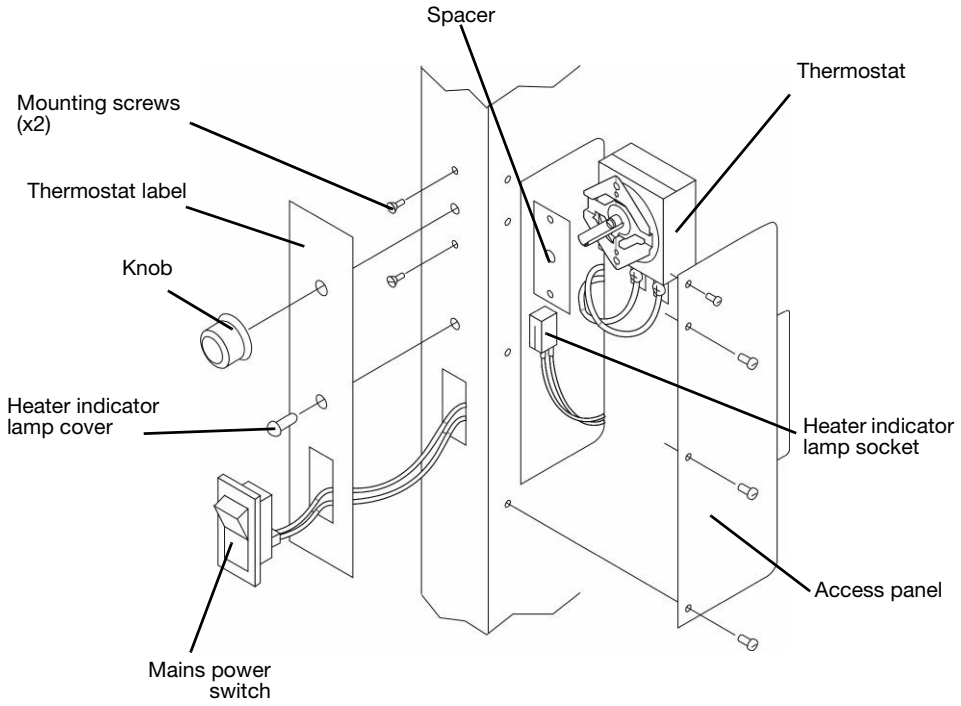
Required Items:

- 1/4-in. nutdriver

To remove the front panel:

1. Press the power switch to the **OFF** (O) position, then unplug the power cord.
2. Remove the tray covering the access panel (see Figure 6.1).
3. Remove the screws holding the shelf supports that cover the access panel, then remove the shelf.
4. Remove the screws holding the access panel, then remove the access panel (see Figure 6.1).

Figure 6.1 Access panel assembly — exploded view



To reinstall the access panel:

1. Reinstall the access panel, then securely tighten the screws (see Figure 6.1).
2. Reinstall the shelf supports over the access panel, then securely tighten the screws.
3. Place the tray on the shelf.
4. Test the Warmette for proper operation (see page 2-5).

Replacing the Mains Power Switch

Should you need to replace the mains power switch (| / O), perform the following procedure.

Required Items:

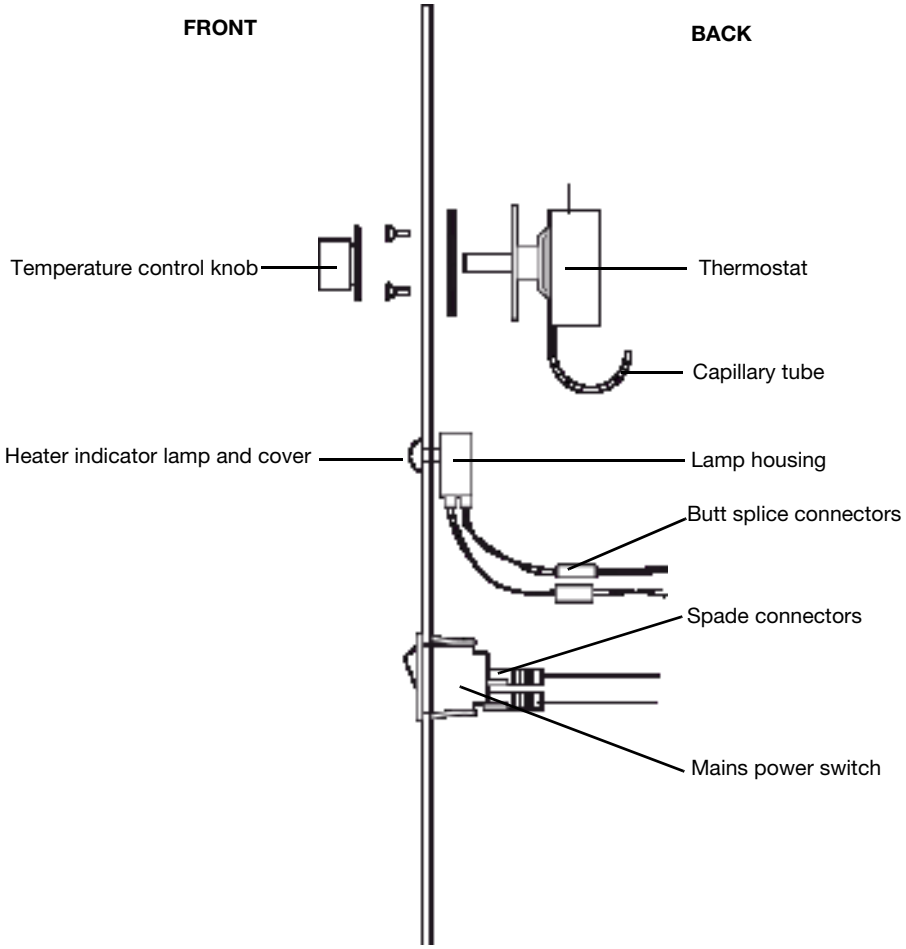
- Mains power switch (part no. 200001)
- 3/64-in. Allen wrench
- 1/4-in. nutdriver

To remove the mains power switch:

1. Press the power switch to the **OFF** (O) position, then unplug the power cord.
2. Remove the access panel (see *Removing the Access Panel* on page 6-3).
3. Disconnect the mains power switch spade connectors (see Figure 6.2).

4 Push the power switch forward through the front of the Warmette cabinet (see Figure 6.2).

Figure 6.2 Access panel assembly — side view



To install a new mains power switch:

1 Insert the new switch through the opening.

2 Press the switch into the opening until it snaps into place.

3 Connect the spade connectors (see *Drawings and Schematics* on page A-1).

4 Replace the access panel, shelf supports, and tray.

5 Test the Warmette for proper operation (see page 2-5).

Replacing the Heater Indicator Lamp

If the heater indicator lamp is burned out, perform the following procedure to replace it.

Required Items:

- Heater indicator lamp (part no. 200002)
- 1/4-in. nutdriver

To remove the heater indicator lamp:

1. Press the power switch to the **OFF** (O) position, then unplug the power cord.
2. Remove the access panel (see *Removing the Access Panel* on page 6-3).
3. Remove the two butt splice connectors (see Figure 6.2 on page 6-5).
4. Slide the lamp housing down until the lamp cover snaps out of the lamp housing (see Figure 6.2 on page 6-5).
5. Remove the lamp housing.

To install the new heater indicator lamp:

1. To put a new lamp housing in place, press the lamp cover from the front of the Warmette (see Figure 6.2 on page 6-5).
2. While continuing to press the lamp cover, put the new housing under the lamp cover on the back of the control. Pull up on the lamp housing until it snaps into place.
3. Reconnect with the two 18–22 AWG butt splice connectors at the end of the lamp housing wires.
4. Reinstall the access panel, the shelf supports, and the tray.
5. Test the Warmette for proper operation (see on page 2-5).

Replacing the Thermostat

If the heat is inaccurate to the setting, replace the thermostat.

Required Items:

- Thermostat (part no. 400726)
- Thermostat label (part no. 301410)
- 3/64-in. Allen wrench
- Pencil

To replace the thermostat:

1. Press the power switch to the **OFF** (O) position, then unplug the power cord.
2. Remove the access panel (see *Removing the Access Panel* on page 6-3).
3. Using the Allen wrench, loosen the two knob set screws.
4. Pull off the temperature control knob.

5 Remove the indicator lamp cap and the mains power switch (see *Replacing the Mains Power Switch* on page 6-4).

6 Remove and discard the thermostat label.

7 Remove the two mounting screws on the front of the thermostat (see Figure 6.1 on page 6-4).

8 Remove the temperature probe bulb from the plenum:

a Remove the front panel *(*see *Replacing the Blower* on page 6-9).

b Unhook and remove the plenum hold-down spring and bridge (see Figure 6.5 on page 6-10). Separate the plenum from the casing.

c The temperature probe bulb is located inside the plenum. It is held by nylon tie-wrap to the grille in the bottom of the plenum. With a pencil, trace around the perimeter of the bulb. Cut the nylon tie and feed the temperature probe bulb through the hole in back of the plenum and out through the front panel opening.

NOTE The correct probe bulb position is important to the proper temperature regulation.

d Pull the thermostat and probe out of the Warmette cabinet (see Figure 6.1 on page 6-4).

NOTE Avoid kinking or flexing the capillary (small copper) tube of the new controller, especially where it joins the thermostat.

e Disconnect the wires from the top of the thermostat, then remove the old thermostat (see Figure 6.2 on page 6-5).

To reassemble the Warmette:

1 Feed the temperature probe through the front panel opening, and through the hole in the back of the plenum. Secure the probe bulb to the grille in the same location as the old bulb using a nylon tie wrap.

2 Connect the thermostat wires to the new thermostat.

3 Hold the assembly spacer in position and insert the shaft of the new thermostat into the opening from the back of the panel (see Figure 6.2 on page 6-5)

NOTE Avoid dropping the spacer inside the wall cavity of the Warmette cabinet during removal or reassembly. If the spacer falls inside the wall, simply remove the lint filters to retrieve it (see Figure 4.2 on page 4-3).

4 Install and tighten the two mounting screws (see Figure 6.1 on page 6-4).

5 Remove any label adhesive residue from the device. Discard the old label.

6 Remove and discard the backing from the new thermostat label, then press the new label gently into place.

7 Ensure that the thermostat shaft is rotated fully counterclockwise and then replace the control knob, making sure it is aligned with the 90° mark.

8 Turn the control knob fully clockwise and loosen the two set screws. Rotate the knob slightly counterclockwise by half the gap between full rotation and the 150°F mark and then retighten the set screws.

9 Replace the mains power switch (see page 6-4).

10 Replace the access panel, shelf supports, and tray.

11 Test the Warmette for proper operation (see on page 2-5).

Replacing the Thermostat Label

Replace the thermostat label if it was damaged while replacing one of the access panel components.

Required Items:

- Thermostat label (part no. 301410)

To remove the old label:

1 Press the power switch to the **OFF** (O) position, then unplug the power cord.

2 Remove the thermostat knob (see *step 3 and* step 4 on page 6-6*)*.

3 Remove the heater indicator lamp cover (see Figure 6.1 on page 6-4).

4 Remove the mains power switch (see page 6-4).

5 Peel the old label off the thermostat. Discard the old label.

6 Remove any label adhesive residue from the device.

To replace the new label:

1 Ensure that the surface is clean and dry.

2 Remove and discard the backing from the new label, then press the new label gently into place.

3 Install the mains power switch (see page 6-5).

4 Install the thermostat knob.

5 Test the Warmette for proper operation (see page 2-5).

Replacing the Blower

If air does not circulate or if the Warmette temperature is inconsistent throughout the device, the blower may need to be replaced.

Required Items:

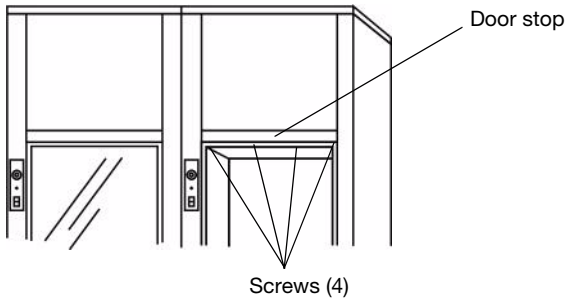
- 1/4-in. nutdriver
- 7/16-in. nutdriver

To replace the blower:

1 Press the power switch to the **OFF** (O) position, then unplug the power cord.

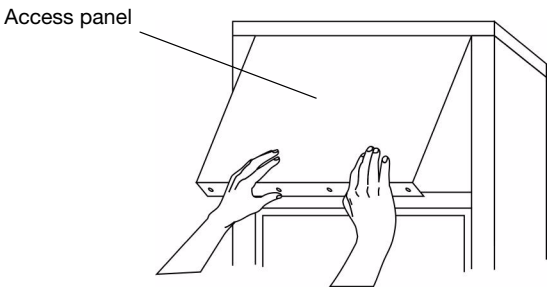
2 Loosen—but do not remove—screws inside the Warmette door, behind the door stop (see Figure 6.3).

Figure 6.3 Screw locations inside Warmette door



3 Pull out and remove the front panel (see Figure 6.4).

Figure 6.4 Removing the front panel

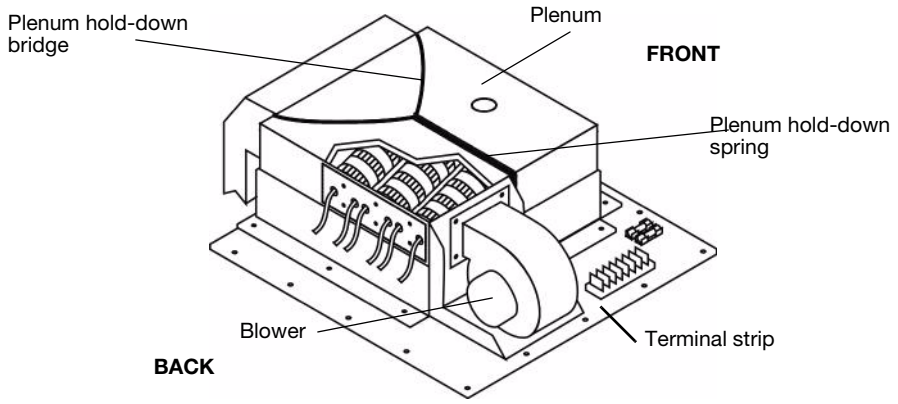


4 Remove the blower:

- **a** Remove and set aside the four acorn nuts and washers securing the bottom of the blower; the nuts are located inside the cabinet under the blower.
- **b** Lift the blower assembly and position it to allow access to the ground wire screw on the motor side of the blower housing. (see Figure 6.5).
- **c** Remove and set aside the ground screw and star lock-washer.
- **d** Disconnect the blower assembly electrical connections at the terminal strip.
- **e** Remove the four bolts securing the blower to the bracket.
- **f** Remove the blower.

To remove the wire ties and old blower:

Figure 6.5 Blower/Filter assembly



NOTE Since it is easy to clean the Warmette while the blower is removed, perform the annual maintenance and inspection at this time. The annual maintenance includes cleaning the heater plenum and box, blower housing, and fan cage. See *Annual Maintenance* on page 4-3.

1. Installing the new blower:
   a. Assemble the new blower to the bracket.
   b. Lower the blower and mounting bracket down and toward the plenum.
   c. Reattach the four acorn nuts and washers to secure the bottom of the blower.
   d. Connect the blower assembly electrical connections at the terminal strip.
2. Attach the front panel.
3. Tighten the screws inside the Warmette door.
4. Plug in the power cord.
5. Test the Warmette for proper operation (see on page 2-5).

Replacing the Thermal Cut-out

If the thermal cut-out does not function properly (see *Testing the Thermal Cut-out Function* on page 4-4), replace the component by performing this procedure.

Required Items:

- Thermal cut-out (part no. 200051)
- 1/4-in. nutdriver

To remove the thermal cut-out:

1. Press the power switch to the **OFF** (O) position, then unplug the power cord.
2. Remove the upper white door seal and loosen—but do not remove—the screws inside the door, behind the door stop (see *Removing the Access Panel* on page 6-3).
3. Pull out and remove the front panel (see Figure 6.4 on page 6-9).

> ⚠ **CAUTION** Electrical shock hazard when the front panel is removed.

4. Unhook, remove, and set aside the plenum hold-down springs. Next, disconnect the thermal cut-out wires (see Figure 6.5 on page 6-10).
5. Separate the plenum from the filter case.
6. Locate and remove the screws and kep nuts attaching the failed thermal cut-out to the plenum assembly. Set aside the screws and kep nuts.

To place the new thermal cut-out:

1. Place the new thermal cut-out, then attach with screws and kep nuts.
2. Reinstall the plenum, taking care to fully seat the plenum and filter. Install the plenum hold-down springs and reconnect the thermal cut-out wires.
3. Verify the correct function of the thermal cut-out (see *Testing the Thermal Cut-out Function* on page 4-4).
4. Reinstall the front panel.
5. Test the Warmette for proper operation (see on page 2-5).

Replacing the Heater

The Warmette has three heaters on each side. If the Warmette does not heat, determine if the heater has failed (e.g. check the current to the unit. If it is much less than 14A (120V~) or 8A (220V~) and all connections appear functional, a failed heater is suspect. Remove the heaters and check with an ohm meter; replace the heater if necessary.

Required Items:

- Heater (part no. 401572)
- 1/4-in. nutdriver

To remove the heater:

1. Press the power switch to the **OFF** (O) position, then unplug the power cord.
2. Loosen—but do not remove—the screws inside the door, behind the door stop (see Figure 6.3 on page 6-9).
3. Pull out and remove the front panel (see *Removing the Access Panel* on page 6-3).
4. Unhook and remove the plenum hold-down spring and bridge (see Figure 6.5 on page 6-10).
5. Separate the plenum from the casing.
6. Lift the plenum, then unscrew the heater from its socket.
7. Remove the old heater from the Warmette.

To place the new heater:

1. Place the new heater into the Warmette, then securely tighten the screws.
2. Reinstall the plenum. Ensure that the plenum and case are seated firmly. Install the plenum hold-down spring and bridge.
3. Reinstall the front panel and tighten the screws.
4. Test the Warmette for proper operation (see page 2-5).

Section

7

Replacement Parts

NOTE Use only Natus Medical-approved parts with the Warmette.

Ordering Information

To order Warmette parts and accessories, contact:

Natus Medical Incorporated
Customer Service Department
Toll-free: 1-800-303-0306
Phone: +1-650-802-0400
Fax: +1-650-802-6620
Email: customer_service@natus.com

When ordering parts, please provide the item number to the customer service representative.

Table 7.1 Replacement parts list

Item Name / Description	Item Number
Blower assembly kit	200036-k507
Fuses (25A 250V FLM time delay)	200021
Heater indicator lamp	200002
Heaters, 500 Watt	401572
Power switch	200001
Thermal cut-out	200051
Thermostat assembly	400726
Thermostat label	301410
Catch, door	100317-503

Section

8

Specifications

Intended Use

The Warmettes are intended for warming fluids, blankets or other linens in a hospital setting.

Dimensions — Model 48/49

Dimensions

- Height: 84.5 in. 214.6 cm
- Width: 26.0 in. 66.0 cm
- Depth: 21.0 in. 53.3 cm

Product Weight

135 lb 61 kg

Shipping Weight

260 lb 118 kg

Warming Capacity

13.5 cu. ft. 0.38 cu. m

Dimensions — Model 55/56

Dimensions

- Height: 84.5 in. 214.6 cm
- Width: 51.8 in. 131.6 cm
- Depth: 21.0 in. 53.3 cm

Product Weight

275 lb 125 kg

Shipping Weight

550 lb 280 kg

Warming Capacity

27.0 cu. ft. 0.76 cu. m

Electrical

Power Requirements (per module)

- Voltage: 120–220V~, single phase
- Consumption:
  - 14.0A (120V~)
  - 8.0A (220V~)
- Frequency (current): 50 ±1 Hz or 60 ±1 Hz

Ground

Does not exceed 0.13 V

Fuses

Two internal 25A 250V FLM time delay fuses

Environmental

Temperature

- Operating: 50–104°F 10–40°C
- Shipping: -40–158°F -40–70°C
- Storage: -40–158°F -40–70°C

Relative Humidity (RH)

- Operating: 10–95% relative humidity, non-condensing
- Non-operating: 10–100% relative humidity, condensing

Operating Altitude

Up to 10000 ft Up to 3000 m

Pressure

0.5–1.0 atm 500–1060 hPA

Controls

- Mains power switch changes device state mains power on/off (| / O)
- **SET TEMP** temperature dial is a thermostat control for the internal temperature of the Warmette

External Connections

Hospital-grade power cord (120V units)

Product

Item	Catalog No.
Warmette Model 48	56948
Warmette Model 49 (with rear door)	56949
Warmette Model 55	56955
Warmette Model 56 (with rear doors)	56956

Regulatory, Electrical Safety, and Classifications

Regulatory Status

- CAN/CSA 1010.1B-97 (120V~ only)
- CAN/CSA 1010.2.010-94 (120V~ only)
- UL 61010A-2-10
- UL 61010B-1
- Installation/overvoltage category II
- Ordinary Equipment IPXØ
- Pollution degree 2
- Indoor use only

Service

Service can be performed by hospital technicians. See *Ordering Information* on page 7-1 for more information.

Warranty

One-year warranty on parts.

Product Disposal

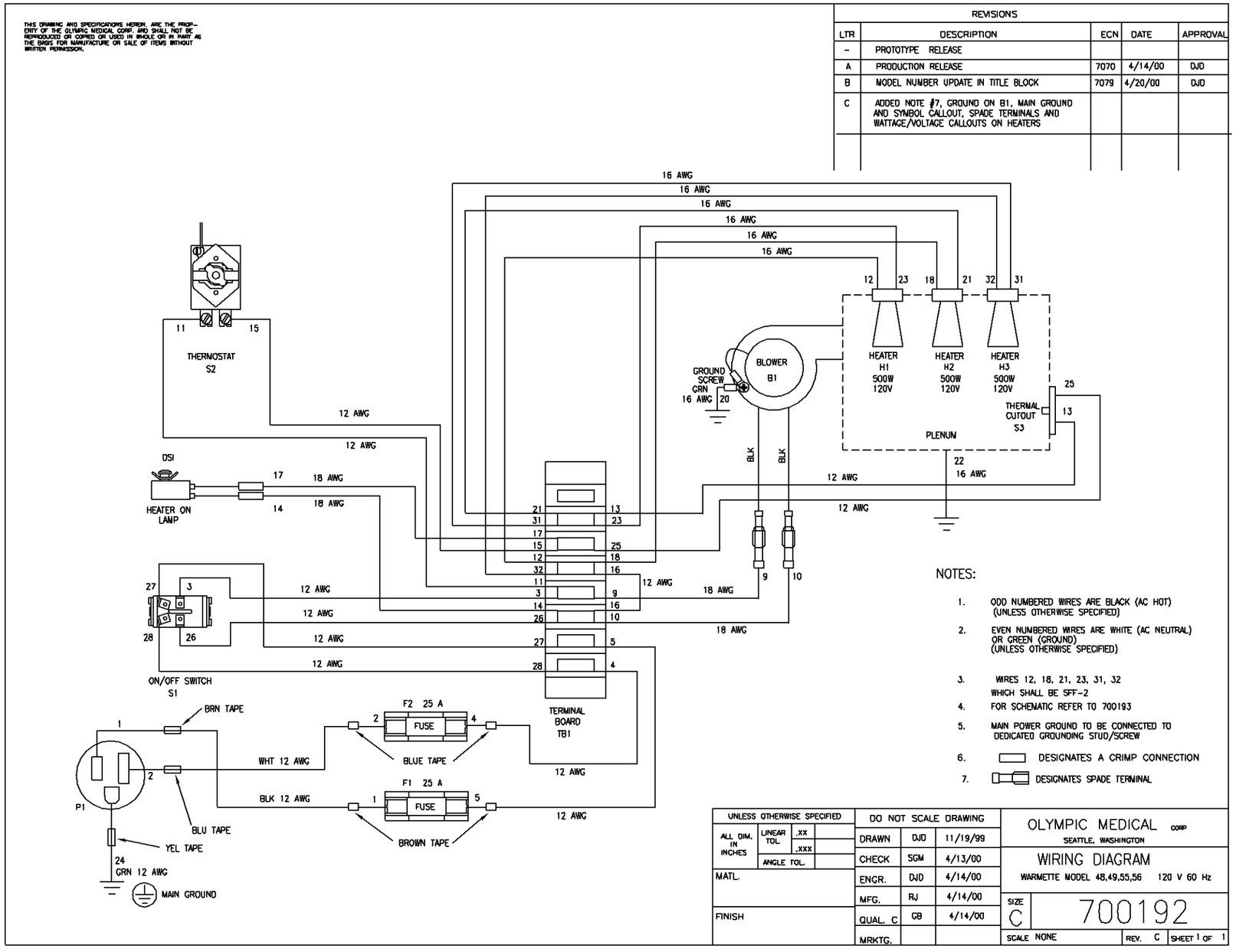
Disposal of the Warmette does not require any special precautions. Follow local waste disposal regulations.

Electromagnetic Interference

The Warmette is neither a source of nor affected by electromagnetic interference (EMI).

Drawings and Schematics

Figure 8.1 Model 48/49/55/56, Olympic Warmette Wiring Diagram, Drawing No. 700192 Rev. C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REVISIONS
LTR | DESCRIPTION | ECN | DATE | APPROVAL
- | PROTOTYPE RELEASE
A | PRODUCTION RELEASE | 7070 | 4/14/00 | DJD
B | MODEL NUMBER UPDATE IN TITLE BLOCK | 7079 | 4/20/00 | DJD
C | ADDED NOTE #7, GROUND ON B1, MAIN GROUND AND SYMBOL CALLOUT, SPADE TERMINALS AND WATTAGE/VOLTAGE CALLOUTS ON HEATERS
16 AWG
THERMOSTAT S2
12 AWG
DSI
HEATER ON LAMP
18 AWG
ON/OFF SWITCH S1
BRN TAPE
WHT 12 AWG
BLK 12 AWG
BLU TAPE
YEL TAPE
24 GRN 12 AWG
MAIN GROUND
P1
F2 25 A FUSE
BLUE TAPE
F1 25 A FUSE
BROWN TAPE
TERMINAL BOARD TB1
BLOWER B1
GROUND SCREW GRN 16 AWG
HEATER H1 500W 120V
HEATER H2 500W 120V
HEATER H3 500W 120V
THERMAL CUTOUT S3
PLENUM
BLK
NOTES:
1. ODD NUMBERED WIRES ARE BLACK (AC HOT) (UNLESS OTHERWISE SPECIFIED)
2. EVEN NUMBERED WIRES ARE WHITE (AC NEUTRAL) OR GREEN (GROUND) (UNLESS OTHERWISE SPECIFIED)
3. WIRES 12, 18, 21, 23, 31, 32 WHICH SHALL BE SFF-2
4. FOR SCHEMATIC REFER TO 700193
5. MAIN POWER GROUND TO BE CONNECTED TO DEDICATED GROUNDING STUD/SCREW
6. DESIGNATES A CRIMP CONNECTION
7. DESIGNATES SPADE TERMINAL
UNLESS OTHERWISE SPECIFIED
ALL DIM. IN INCHES
LINEAR TOL. .XX .XXX
ANGLE TOL.
MATL.
FINISH
DO NOT SCALE DRAWING
DRAWN DJD 11/19/99
CHECK SGM 4/13/00
ENGR. DJD 4/14/00
MFG. RJ 4/14/00
QUAL. C GB 4/14/00
MRKTG.
OLYMPIC MEDICAL CORP
SEATTLE, WASHINGTON
WIRING DIAGRAM
WARMETTE MODEL 48,49,55,56 120 V 60 Hz
SIZE C
700192
SCALE NONE
REV. C
SHEET 1 OF 1

Figure 8.2 Model 48/49/55/56, Olympic Warmette Schematic, Drawing No. 700193

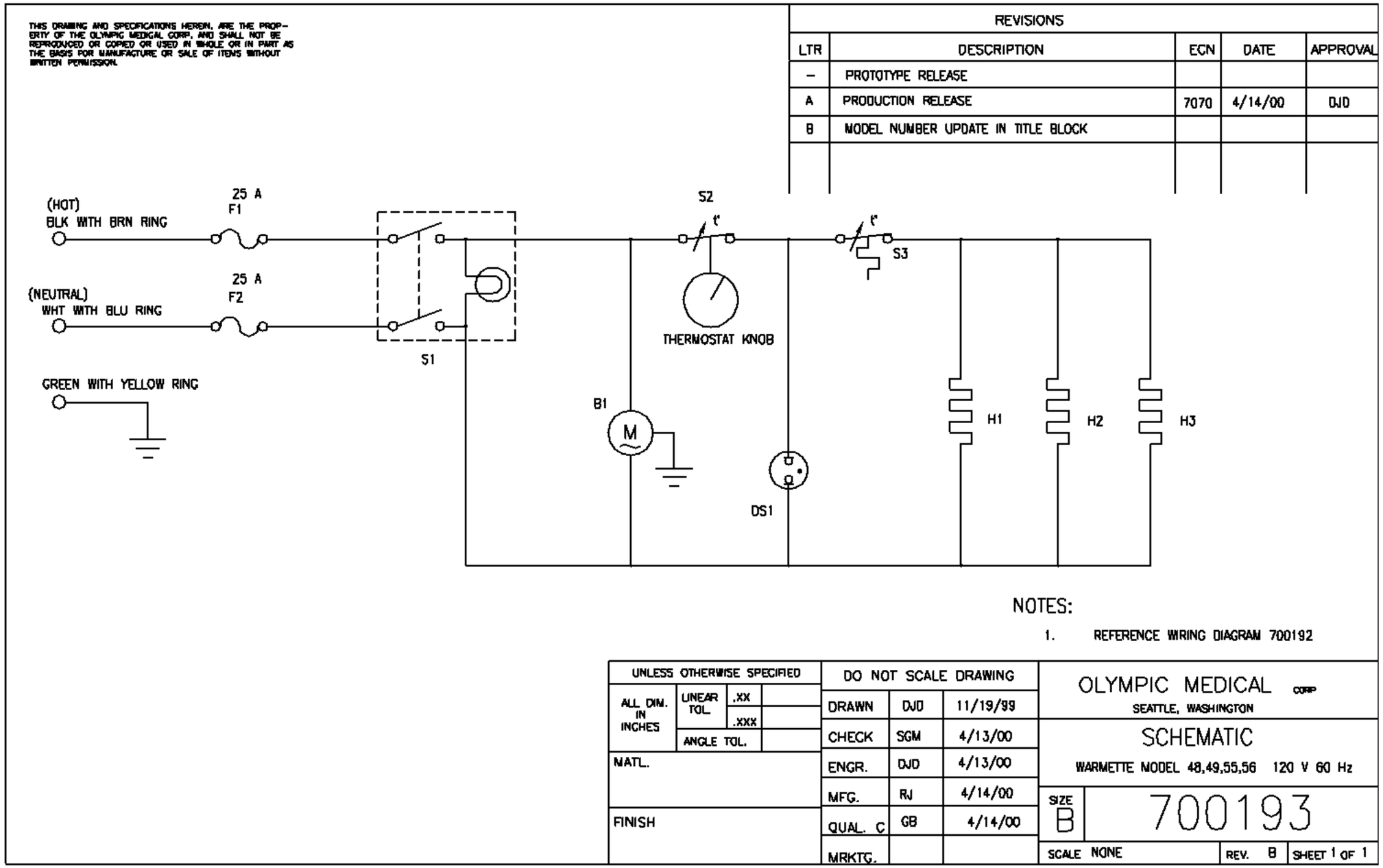
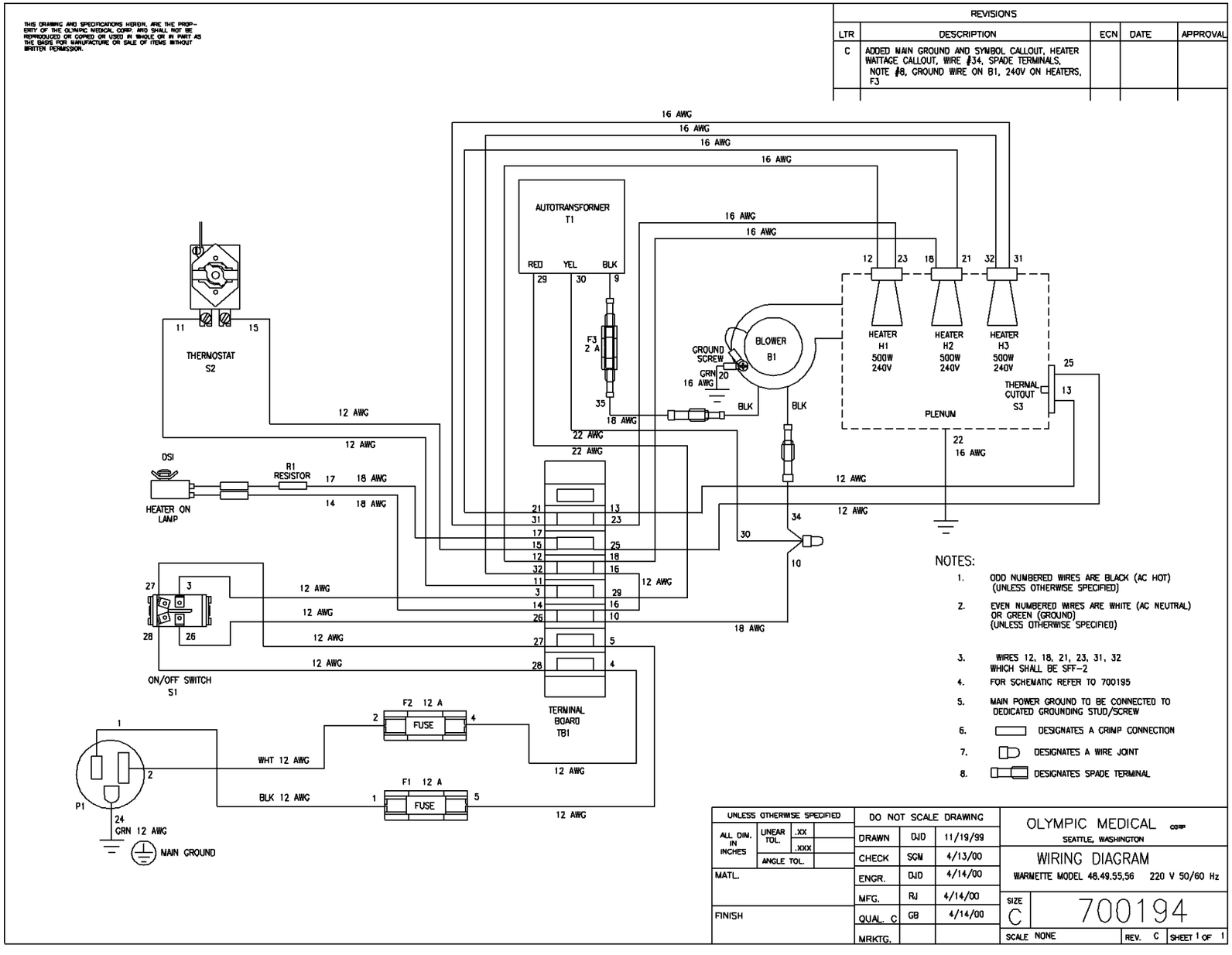


Figure 8.3 Model 48/49/55/56, Olympic Warmette Drawing No. 700194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REVISIONS
LTR DESCRIPTION ECN DATE APPROVAL
C ADDED MAIN GROUND AND SYMBOL CALLOUT, HEATER WATTAGE CALLOUT, WIRE #34, SPADE TERMINALS, NOTE #8, GROUND WIRE ON B1, 240V ON HEATERS, F3
16 AWG
AUTOTRANSFORMER T1
RED YEL BLK
THERMOSTAT S2
BLOWER B1
GROUND SCREW
HEATER H1 500W 240V
HEATER H2 500W 240V
HEATER H3 500W 240V
THERMAL CUTOUT S3
PLENUM
F3 2 A
12 AWG
22 AWG
18 AWG
DSI
HEATER ON LAMP
R1 RESISTOR
ON/OFF SWITCH S1
TERMINAL BOARD TB1
F2 12 A
F1 12 A
FUSE
WHT 12 AWG
BLK 12 AWG
P1
MAIN GROUND
NOTES:
1. ODD NUMBERED WIRES ARE BLACK (AC HOT) (UNLESS OTHERWISE SPECIFIED)
2. EVEN NUMBERED WIRES ARE WHITE (AC NEUTRAL) OR GREEN (GROUND) (UNLESS OTHERWISE SPECIFIED)
3. WIRES 12, 18, 21, 23, 31, 32 WHICH SHALL BE SFF-2
4. FOR SCHEMATIC REFER TO 700195
5. MAIN POWER GROUND TO BE CONNECTED TO DEDICATED GROUNDING STUD/SCREW
6. DESIGNATES A CRIMP CONNECTION
7. DESIGNATES A WIRE JOINT
8. DESIGNATES SPADE TERMINAL
UNLESS OTHERWISE SPECIFIED
ALL DIM. IN INCHES LINEAR TOL. .XX .XXX ANGLE TOL.
MATL.
FINISH
DO NOT SCALE DRAWING
DRAWN DJD 11/19/99
CHECK SCM 4/13/00
ENGR. DJD 4/14/00
MFG. RJ 4/14/00
QUAL. C GB 4/14/00
MRKTG.
OLYMPIC MEDICAL CORP SEATTLE, WASHINGTON
WIRING DIAGRAM
WARMETTE MODEL 48.49.55.56 220 V 50/60 Hz
SIZE C 700194
SCALE NONE REV. C SHEET 1 OF 1

Figure 8.4 Model 48/49/55/56 Olympic Warmette Drawing No. 700195

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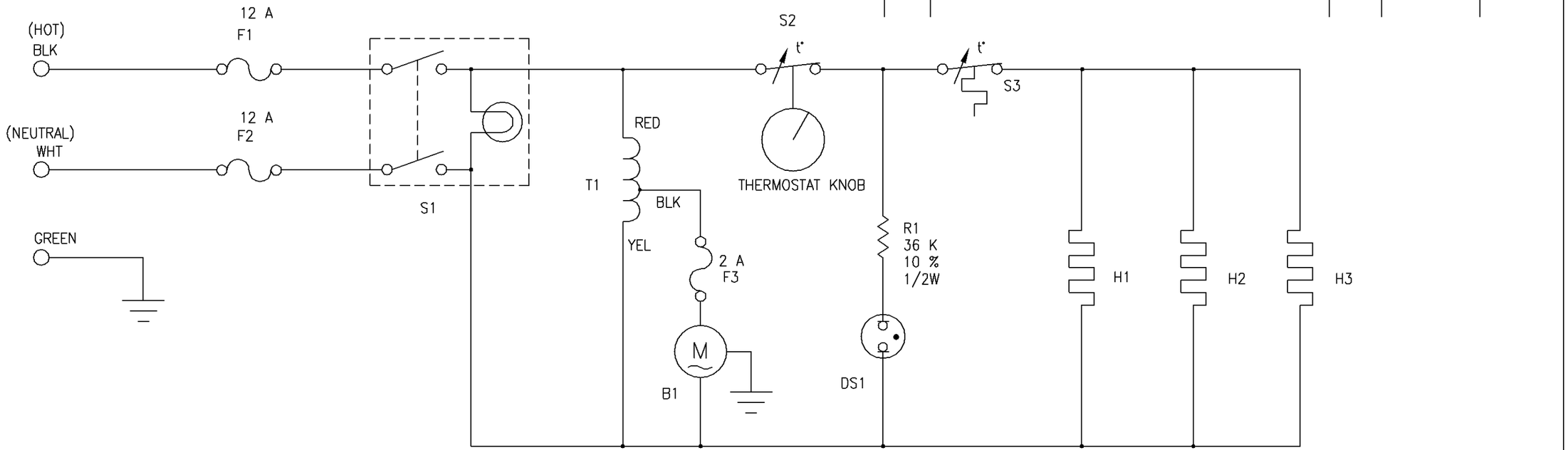
REVISIONS				
LTR	DESCRIPTION	ECN	DATE	APPROVAL
–	PROTOTYPE RELEASE			
A	PRODUCTION RELEASE	7070	4/13/00	DJD
B	MODEL NUMBER UPDATE IN TITLE BLOCK	7079	4/20/00	DJD
C	ADDED F3			



NOTES:

1. REFERENCE WIRING DIAGRAM 700194

UNLESS OTHERWISE SPECIFIED			
ALL DIM. IN INCHES	LINEAR TOL.	.XX	
		.XXX	
	ANGLE TOL.		
MATL.			
FINISH			

DO NOT SCALE DRAWING		
DRAWN	MJG	11/30/99
CHECK	SGM	4/13/00
ENGR.	DJD	4/13/00
MFG.	RJ	4/14/00
QUAL. C	GB	4/14/00

OLYMPIC MEDICAL CORP
SEATTLE, WASHINGTON

SCHEMATIC

WARMETTE MODEL 48,49,55,56 220 V 50/60 Hz

SIZE B | 700195